

Application No. 09/449,907
Attorney Docket No. 107176-09004

B² ~~encl.~~ disposed in a third plane, the first, second and third planes spaced apart from and extending parallel to one another.

✓ Please add claims 7 and 8 as follows:

2. (New) A chemical mechanical polishing cloth according to Claim 1, wherein each one of the polishing projections is columnar shaped.

B³ 3. (New) A chemical mechanical polishing cloth according to Claim 2, wherein each one of the polishing projections has a first columnar portion having a first diameter and a second columnar portion having a second diameter larger than the first diameter, the first columnar portions having flat, circular end surfaces forming the polishing faces, the second columnar portion attached to the first columnar portion to define a circumferential, flat edge section surrounding the first columnar portion, the circumferential, flat edge sections forming the plurality of one-stage step portions. --

A copy of the marked up amended claims is attached to this response showing the changes as set forth in amended 37 C.F.R. § 1.121.

REMARKS

Claims 1, 2, 4-5 and 7-8 are pending in this application. By this Amendment, claims 3 and 6 are canceled without prejudice or disclaimer, claims 1 and 4 are amended and claims 7-8 are added. Support for the amendments is found in the specification, specifically Figs. 4 and 5. No new matter is added.

Entry of this Amendment is proper under 37 C.F.R. § 1.116 since this Amendment: (a) places the application in condition for allowance for reasons discussed herein; (b) does not raise any new issue regarding further search and/or consideration since the Amendment amplifies issues previously discussed throughout prosecution; (c) does not

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present any additional claims without canceling a corresponding number of finally-rejected claims and (d) places the application in better form for appeal, should an appeal be necessary. The Amendment is necessary because it is made in reply to arguments raised in the rejection. Entry of the Amendment is thus respectfully requested.

Applicants gratefully appreciate the Office Action's indication that claims 2 and 5 contain patentable subject matter. However, in view of the above amendments and following remarks, Applicants respectfully submit that all of pending claims 1-2, 4-5 and 7-8 contain patentable subject matter.

CLAIMS 1, 4, 7 AND 8 CONTAIN PATENTABLE SUBJECT MATTER

The Office Action rejects claim 1 under 35 U.S.C. § 102(b) as anticipated by Amsden et al. (U.S. Patent No. 5,778,481). This rejection is respectfully traversed.

Amsden teaches a disc-shaped polishing pad. The polishing pad includes a plurality of raised ridged surfaces that define grooves. The grooves provide a way for channeling fluid on the pad surface to flow toward the periphery of the pad.

Claim 1 recites that the polishing faces "are disposed in a first plane", the bottoms of the polishing agent passages are "disposed in a second plane" and "a plurality of" one-stage step portions are disposed in a third plane. Further, claim 1 recites that "the first, second and third planes are spaced apart and extend parallel to one another."

In contrast, Amsden et al. shows contoured edge portions 18 that are angled relative to the flattened portion of the disc, not extending parallel to the flattened portion of the disc.

Accordingly, Amsden et al. fails to teach polishing projections, bottoms of polishing agent passages and one-stage step portions that are disposed in spaced apart, parallel planes as recited in claim 1.

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In view of the above, Applicants respectfully solicit the withdrawal of the rejection of claim 1 under 35 U.S.C. § 102(b).

The Office Action rejects claim 4 under 35 U.S.C. § 103(a) as unpatentable over Nagahara et al. (U.S. Patent No. 5,816,900) in view of Amsden. This rejection is respectfully traversed.

Claim 4 claims a chemical mechanical polishing apparatus including a polishing cloth having the features discussed above regarding claim 1.

Nagahara teaches a polishing apparatus that includes a polishing cloth 16 for mechanically polishing a workpiece 12, a polishing head 26, and tubes 66 for delivering a chemical polish to the chemical mechanical polishing cloth 16.

It is readily apparent that Nagahara does not contain any disclosure or suggestion relating to polishing projections in a first plane, polishing agent passages in a second plane, a plurality of one-stage steps disposed in a third plane, the first, second and third planes spaced apart and parallel to one another, as recited in claim 4.

Thus, in view of the above, Applicants respectfully request the withdrawal of the rejection of claim 4 under 35 U.S.C. § 103(a).

Claims 7 and 8 depend from claim 1. Therefore, claims 7 and 8 should be patentable for the reasons stated above and for the additional features recited.

CONCLUSION

In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully solicited. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed

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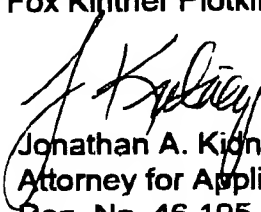
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below.

In the event this paper is not being timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 01-2300.

Respectfully submitted,

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Enclosures: Marked-Up Copy of Amended Claims

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MARKED-UP COPY OF AMENDED CLAIMS

1. (Once Amended) A polishing cloth for chemically mechanically polishing a workpiece, said chemical mechanical polishing cloth comprising, on an opposite-to-workpiece face thereof:

polishing projections having polishing faces arranged to come in contact with [a] the workpiece for polishing the same and disposed in a first plane;

polishing agent passages, having bottoms disposed in a second plane, for introducing a polishing agent; and

[at least] a plurality of one-stage step portions formed between said polishing faces of said polishing projections and the bottoms of said polishing agent passages and disposed in a third plane, the first, second and third planes spaced apart from and extending parallel to one another.

4. (Once Amended) A chemical mechanical polishing apparatus, comprising:

a chemical mechanical polishing cloth for chemically mechanically polishing a workpiece;

a polishing head for holding and rubbing a workpiece with said chemical mechanical polishing cloth; and

a polishing agent supply mechanism for supplying a polishing agent to said chemical mechanical polishing cloth,

~~said chemical mechanical p~~ lishing cloth including, on an opposite-to-workpiece face thereof:

polishing projections having polishing faces arranged to come in contact with [a]

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the workpiece for polishing the same and disposed in a first plane;

polishing agent passages, having bottoms disposed in a second plane, for
introducing a polishing agent; and

[at least] a plurality of one-stage step portions formed between said polishing faces
of said polishing projections and the bottoms of said polishing agent passages and
disposed in a third plane, the first, second and third planes spaced apart from and
extending parallel to one another.